



US005679313A

United States Patent [19]

Nojima et al.

[11] Patent Number: **5,679,313**[45] Date of Patent: **Oct. 21, 1997**[54] **AMMONIA DECOMPOSITION CATALYSTS**[75] Inventors: **Shigeru Nojima; Rie Tokuyama; Kouzo Iida**, all of Hiroshima, Japan[73] Assignee: **Mitsubishi Jukogyo Kabushiki Kaisha**, Tokyo, Japan[21] Appl. No.: **472,057**[22] Filed: **Jun. 6, 1995**[51] Int. CL⁶ **C01B 3/04**[52] U.S. CL. **423/237; 423/351; 423/658.2**[58] Field of Search **423/328.2, 237, 423/351, 658.2; 502/64, 66**[56] **References Cited****U.S. PATENT DOCUMENTS**5,338,715 8/1994 Iida et al. **502/64****FOREIGN PATENT DOCUMENTS**4020914 1/1992 Germany **423/237**
53-132465 11/1978 Japan **423/237**

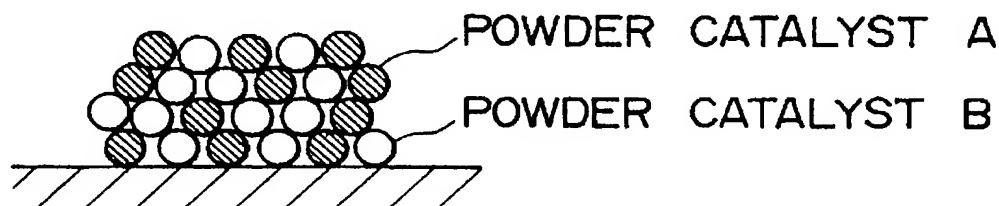
02107265 4/1990 Japan .

Primary Examiner—Wayne Langel*Attorney, Agent, or Firm*—Michael N. Meller[57] **ABSTRACT**

An ammonia decomposition catalyst wherein a first catalyst having a crystalline silicate which is represented by the formula in terms of molar ratio of oxides as dehydrated:



wherein R denotes an alkaline metal ion and/or hydrogen ion, M denotes a VIII Group element, rare earth element, titanium, vanadium, chromium, niobium, antimony or gallium, M' denotes magnesium, calcium, strontium or barium, $a \geq 0$, $20 > b \geq 0$, $a + c = 1$, $3000 > y > 11$ or a specific porous material as a carrier and iridium or a noble metal as an active metal is present together with or covered with a second catalyst having at least one element selected from the group consisting of titanium, vanadium, tungsten and molybdenum, if necessary, as well as a method of using the same.

7 Claims, 1 Drawing Sheet

**MONOLITH SUBSTRATE
(CORDIERITE)**